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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,391	06/20/2003	Andreas Nickel	Bayer 10260-WCG	8238
27386 7590 09/20/2007 NORRIS, MCLAUGHLIN & MARCUS, P.A. 875 THIRD AVE 18TH FLOOR NEW YORK, NY 10022			EXAMINER NAGPAUL, JYOTI	
			ART UNIT 1743	PAPER NUMBER
			MAIL DATE 09/20/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/600,391

Applicant(s)

NICKEL ET AL.

Examiner

Jyoti Nagpaul

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 26 is/are pending in the application.
- 4a) Of the above claim(s) 17-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Amendment filed on July 9, 2007 has been acknowledged. Claims 1-2, 4-16 and 26 are pending.

Response to Amendment

Rejection of Claims 1,4,7,10-11 and 26 as being anticipated by Cote (US 5182019) has been withdrawn in light of applicant's amendments.

Rejection of Claims 2, 5-6 and 12 as being unpatentable over Cote in view of Taketomo (US 4671809) has been modified in light of applicant's amendments.

Rejection of Claims 8-9 as being unpatentable over Cote in view of Pederson (US 5366625) has been modified in light of applicant's amendments.

Rejection of Claims 13-14 as being unpatentable over Cote in view of Shay (US 4310607) has been modified in light of applicant's amendments.

Rejection of Claim 15 as being unpatentable over Cote in view of Bellhouse (US 6217764) has been modified in light of applicant's amendments.

Rejection of Claim 16 as being unpatentable over Cote in view of Dobo (US 4268278) has been modified in light of applicant's amendments.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1-2, 4-6, 12 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote in view of Taketomo (US 4671809).

Cote teaches a separation module. The module comprises at least one bundle of ceramic capillaries/fibers (30). The capillaries/fibers (30) have external diameters in the range of 0.3 mm to 10mm and the internal diameters of 0.1mm to 8mm wherein a distance is established between capillaries/fibers (30) by joining. (See Col. 7, Lines 50-55) (See Col. 8, Lines 10-41) (See Col. 11, Lines 29-32) (See Col. 10, Lines 1-55) Cote further teaches the capillaries/fibers (30) are combined at their endings by

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perforated plates (21,22) and a housing (40) that encloses the at least one bundle of ceramic capillaries/fibers (30). The housing (40) has an inlet and/or outlet pipe (45 or 46 or 61) in fluid communication with the inside of the capillaries/fibers for a first material flow and or an outlet pipe in fluid communication with the inner space between the capillaries for a second material flow. (See Figure 4, Col. 14, Lines 58-68 and Col. 15, Lines 1-3) Cote further teaches the capillaries/fibers have on the inside and outside a thin membrane. (See Col. 11, Lines 29-31) Additionally, Cote teaches several bundles of capillaries (10) are arranged parallel to each other in a housing (40). The separation module comprises a feed space and a permeation space. (See Figure 4, Col. 14, Lines 58-68 and Col. 15, Lines 1-3) Cote further teaches a vacuum. (See Col. 18, Lines 30-53)

Cote fails to teach joining the ending of the capillaries in an end plate and where the endings pass at a defined distance from each other. Cote further fails to teach the distance between the capillaries is kept constant by built in-spacers as baffle plates. Cote fails to explicitly teach the distance between capillaries and the capillary bundle is less than 3 mm.

Taketomo teaches a separation module. The module comprises a sheet/spacers (26) at several points along the length of the capillaries so that the individual capillaries are spaced apart by a small distance. (See Figure 10 and Col. 1, Lines 50-55) The module further teaches the bottom of the capillaries is securely embedded in a support/end plate (29) for "close packing" in order to provide a sufficient space between

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each capillary and thus ensuring a gas passage from the outside to the inside of the capillary. (See Col. 2, Lines 5-20)

It would have been obvious to a person of ordinary skill in the art to provide end plates as disclosed in Taketomo to provide a sufficient space between each capillary and thus ensuring a gas passage from the outside to the inside of the capillary.

It would have been obvious to a person of ordinary skill in the art to modify the device of Cote to provide built-in spacers as baffle plates as disclosed in Taketomo in order to ensure that the fluid will flow uniformly along and between the surfaces of the capillaries. (See Col. 1, Lines 60-63)

It would have been obvious to a person of ordinary skill in the art to modify the device of Cote to provide a distance between capillaries and the capillary bundle is less than 3 mm in order to provide sufficient space for fluid flow through the device for optimum fluid separation.

5. **Claims 8-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote in view of Taketomo (US 4671809) as applied to claim 1 above, and further in view of Pederson (US 5366625).

Refer above for the teachings of Cote and Taketomo.

Cote and Taketomo fail to teach the capillary bundles have a diameter of 20 mm to 50mm.

Pederson teaches a filtration module. The module comprising capillary bundles/rounded cartridges (20) having a diameter of 20 mm to 50mm. (See Col. 12, Lines 39-54 and Col.8, Lines 40-53)

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It would have been obvious to a person of ordinary skill in the art to modify the device of Cote to provide rounded capillary bundles having a diameter of 20mm to 50mm in order to provide a predetermined pressure drop of the feed and hence obtaining optimum filtration.

6. **Claims 13-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote in view of Taketomo as applied to claim 1 above, and further in view of Shay (US 4310607).

Refer above for the teachings of Cote and Taketomo.

Cote and Taketomo fail to teach the housing consists of stainless steel

Shay teaches a separator bundle comprising a bundle of capillary fibers. Shay further teaches a stainless steel housing (34) that encloses the bundle of capillary fibers.

It would have been obvious to a person of ordinary skill in the art to modify the device of Cote to provide a stainless steel housing enclosing the bundle in order to use the separator module in a battery cell as disclosed in Shay.

7. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Cote in view of Taketomo as applied to claim 1 above, and further in view of Bellhouse (US 6217764).

Refer above for the teachings of Cote and Taketomo.

Cote fails to teach a ceramic housing.

Bellhouse teaches filtration module. Bellhouse teaches a filter comprising a large number of parallel capillaries in a highly porous block of support material/housing. (See Col. 1, Lines 27-29)

It would have been obvious to a person of ordinary skill in the art to modify the device of Cote to provide a ceramic housing as disclosed in Bellhouse in order ensure radial mixing and hence optimum filtration.

8. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Cote in view of Taketomo as applied to claim 1 above, and further in view of Dobo (US 4268278).

Refer above for the teachings of Cote and Taketomo.

Cote fails to teach a separation module comprising a catalyst.

Dobo teaches fluid separation module comprising hollow fibers. The separation module further comprising a catalyst. (See Col. 1, Lines 1-65)

It would have been obvious to a person of ordinary skill in the art to modify the device of Cote to provide a separation module with a catalyst in order to obtain desired reactions and enhance separation as disclosed in Dobo.

Response to Arguments

9. Applicant's arguments filed July 9, 2007 have been fully considered but they are not persuasive. Applicants' argue that the fibers or ceramic capillaries of Cote must be circumferentially compressible. Applicants' does not claim that the ceramic capillaries of the present invention is not "circumferentially compressible".

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jyoti Nagpaul whose telephone number is 571-272-1273. The examiner can normally be reached on Monday thru Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JN


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